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STUDIES ON XYLITOL

The sweetener which is a potential killer

CONCLUSIONS

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There is obviously no question so far, that xylitol (xylo-pentane-1,2,3,4,5-pentol) could prevent caries by micro organisms in the dental plaque.

It is also proven by several laboratories that xylitol can inhibit the growth of Streptococcus pneumoniae, and could be used as well as the attachment of Haemophilus influenzae on the nasopharyngealcells.

However, if we see, who and what laboratories made the studies, it is obviously clear that the benefiting industry was the promoter of those studies and researches and that they had been done mostly in spite of the influence on teeth.

In Finland will be given even xylitol containing pastilles or chewing gums in kindergartens and pre-school day cares.

There are also several tooth-pastes containing xylitol not only as sweetening agent. This is one of the programmes by the public health systems in Finland, which is partly also copied in Sweden, Switzerland and Denmark. In Germany and Benelux-countries, but also in England and Ireland this system giving xylitol is more or less not known, even the dentist´s associations in most European countries gave recommendations for the use of xylitol.

Actually, as we will see in those studies, specially the Finnish Government and their institutions enforce even babies and small children with the help of the industry to grow up as future alcoholist and addicts of alcohol as this xylitol is an alcohol with even the worsest chain of alcohol.

Clinically seen, as from statistic view (see W.A.Burns/ T.H. Gouldsmith), indeed Finnish children have less caries than mid-/midwest-European children. The reason

for this is probably not the better health-care on teeth and usage of xylitol, but the better water quality.

Actually Finland has extreme high sugar taxes which makes sweets compared to other countries expensive. This also includes carbonized soft drinks like Cola or so far called “energy-drinks” which are much more favored than “diet”-products like Pepsi-max, Coke Zero etc.

Finnish children are eating more or less same amount of (sugar-) sweetened products, like candies, cereals, soft drinks or cakes. Specially potato-chips are very common snacks not only for younger generation.

The average overweight of Finnish children – compared to mid-European children (not English!) is obviously not the consequence of sweetened products but on the consumption of trans-fat containing products like pizza, kebab, French fries, potato-chips and burgers. In the UK and Ireland specially rich transfat-containing “fish n´chips” are together with potato-chips favored snacks.

“*The harmful micro-organisms are starved in the presence of xylitol, allowing the mouth to remineralize damaged even teeth with less interruption”*. – These are the stories of health-care authorities based on some clinical researches.

Actually xylitol is not the only substance with this effect.

This study and the conclusions are not directly related to the association with teeth and the oral biology, but on the aspects of clinical research and pathology, which seems FDA and other health-organization more or less ignored, as there is even no safety data sheet for this product.

Natural xylitol was, before it was approved and tested as food additive by the FDA a natural food-additive. Actually nowadays none industrial product is not of natural origin, but a biochemically manipulated industrial mass-chemical.

Those recommandments issued by the FDA are even doubtful, as this organization also approved Saccharine, Sodium-Cyclamate, as well as Aspartame, whilst the real natural sweetening agent Stevia with no side effects had to run a long procedure and was only in the last years accepted in the USA, Canada and the EU.

Still the import of Stevia is strictly controlled by the Finnish Government, whilst it is a free trade product in Germany and other EEC countries.

Actually on several occasions it has been approved that xylitol is very harmful to dogs and frankly it is a very well established life-threatening toxin to dogs. According to the ASPCA (Animal Poison Control Center), the number of cases of xylitol toxicosis in dogs has significantly increased since the first reports in 2002 up to 2012.

Dogs that have ingested foods containing xylitol (greater than 100 milligrams of xylitol consumed per kilogram of bodyweight) have presented with low blood sugar (hypoglycemia), which can be life-threatening. Low blood sugar can result in a loss of coordination, depression, collapse and seizures in as little as 30 minutes.

Intake of doses of xylitol (greater than 500 – 1000 mg/kg bwt) has been implicated in liver failure in dogs, which can be fatal.

In our tests even 3 dogs died because of over dosage, even dosage given was smaller than daily "recommended" dosage for children.

Possible cause of hypoglycemia experienced by dogs is the fact that the xylitol in gum is released more slowly and absorbed over longer period than when it is consumed as a pure form.

Reason for liver failure were the toxins arisen as a biochemical reaction of the polyalcohol which is a anachiral isomer of pentane-1,2,3,4,5-pentol and transformed into the most lethal methanol.

In pathologic studies the livers of dogs, which died over over dosage of xylitol, show same values as on methanol poisoning (Prof.Valigorsky, Pittsburg, 2009).

Those facts had been reason for further investigations, as well on other species like mice, rats and hamsters and even on studies with children, which had been taken under special supervision with authorities.

In the tests with mice, rats and hamsters there was proven a severe hyperactivity after usage of xylitol.

Specially hamsters in the tests showed up an activity which is increased even by 200% than normal. In 14 cases those hamsters had been active for even 23 hours. One got heard attack being active even for more than 36 hours.

This same result came out on a study with 90 children in the age of 2-4 years, wherein 20 children got placebo pastilles.

Those 70 children showed during the test abnormal responses, i.e. drastically hyperactivity, lack of sleeping

and activities even 20 hours. After reducing the dosage the children got aggressive and showed up severe signs of withdrawal.

More specific in this study is a test of 50 adults, wherein 10 got a placebo, chewed 50 xylitol chewing gums during a period of 24 hours. 25 claimed on extreme diarroea and described "a horrible burning of chest and back", whilst others had cramps in the digestive tract into the stomach". – On those side effects there is absolutely no warning on the sales packages, neither on any FDA informations or recommendations.

Most interesting in study was also that the blood alcohol increased rapidly. Compared the weight of hamsters (average weight 120 gram) of human (A1 children average weight 30 kgs, A2 adult 85 kgs) the blood alcohol was after a dosage of 150 grams equivalent to 0.43 0/000, 200 grams 0.49 0/000 and 300 grams (tested on adults only avoiding serious damage to children) 0.62 0/000 (values as average).

The blood alcohol concentration (EBAC) after consuming 30, 50,70, 100 gram of xylitol (as in form of pastilles) during a period of 8 hours showed alarming values for children (average weight 25 kgs, age 2-3 years).

This is so far interesting as former studies done on dogs showed that they had serious liver failures which in several cases had been fatal. The liver values of all significant probands – animals and humans – showed alarming values.

The most alarming results were shown on breastfeeding moms consuming alcohol (max. allowed 2 liters of beer or 0.7 liters of wine) and eating xylitol, whilst giving their

babies (as recommended) also xylitol: the study had to be postponed after 3 months, due to life threatening liver values caused by xylitol consumption.

In none of items on the market is mentioned a maximum allowed dosage of xylitol. The recommendation mentioned therein is 5 g/daily for children. But in this “recommendation” is already a significant error or mistake in interpretation, as this is for meant for the “properties on teeth health”.

The are no side effects or risks to health mentioned on packages which gives in general the imagination that xylitol is generally a total “healthy” product, even xylitol is a killer-product.

Any warnings are totally missing. Even bulk shipments containing xylitol must be marked and signed with the hazard symbol “irritant xi”, which is same classification as sodiumhypochorite, ethanol or acetone. Actually, as seen in several ports, even in Finland, Germany and the UK, importers and/or forwarders ignore this classification as IMCO goods avoiding higher shipping rates and are a danger to safety.

Some Finnish websites, i.e. koivusokeri.fi, even proudly present that xylitol should be given to babies in the age of 6-12 months in a dosage up to 45 grams daily. This dosage is a guarantee that children will be alcohol addicts once dosage is taken regularly and consumers will have severe liver damage in later stage of life.

The propaganda site for xylitol in internet, www.xylitol.org, even points out that xylitol can be used according to FDA in unlimited quantities.

As for claims that xylitol can prevent tooth decay, we can only say, "**Buyer beware!**": Such claims are based on the faulty theory that bacteria cause tooth decay. We know from the work of famous dentist Weston Price that tooth decay is a problem of nutrient deficiencies—the bacteria are just there cleaning up dead tissue.

Finally, and most importantly, this industrial product is just not necessary. Nature has provided us with many wholesome sweeteners that can be used in moderation without adverse effects in the context of a diet of nutrient-dense traditional foods. Natural Stevia… the real natural thing is a much better choice.

Beside, specially Finnish consumers have the opinion that xylitol is made from Finnish birch trees. This belongs to their marketing strategy selling xylitol containing products. It is true that is sugar was originally from birch tree, but nowadays it is coming from the harvested trash of corn, rice, wheat and other cobs – mostly made in China (rice cobs) or is even mostly a total biochemically manipulated chemical product. There are opened recently several laboratories in China, Korea and Taiwan producing total synthetic xylitol and increasing the world-production by three times. Further new production facilities are planned for 2014 and 2015.

The production is a difficult biochemical process in which are used several hazardous chemicals, therefore in spite of environmental view this product is also most questionable.

The chemical giant DuPont is the only maker using hardwood as source for Xylitol. The dream that xylitol comes from natural (Finnish) birch trees – even Russian

– is therefore a story of mythology or a matter of the past of the time before WWII or the early 60ies and 70ies. Nowadays the production of xylitol is some 120.000 tons worldwide and several projects, mostly in China are running to increase production by yearly 200.000 tons.

Although widely distributed in nature, its presence in low concentration makes it totally uneconomic to produce xylitol on commercial scale from such natural sources. In this context, the techno-economic feasibility of extracting the xylitol from bagasse, as established in Taiwan, China and India is of important commercial significance.

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Study results

in clinic and pathology

exact details after

publication in internet or

in bookshops